

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	("20050081635").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/25 17:40
L24	1	("4618014").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/25 17:45
L25	8	("3670833"   "4418774"   "4531600"   "4553619").PN. OR ("4618014").URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/25 17:48
L26	1128	horowitz.in.	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/25 18:03
L27	1	("5705399").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/25 18:03
S1	50	(US-5946795-\$ or US-6018997-\$ or US-5571952-\$ or US-5710374-\$ or US-4340835-\$ or US-4290301-\$ or US-4510484-\$ or US-5684276-\$ or US-4912351-\$ or US-4379403-\$ or US-5533397-\$ or US-4311053-\$ or US-4920787-\$ or US-5386714-\$ or US-5907104-\$ or US-6463787-\$ or US-6014028-\$ or US-4900919-\$ or US-5603445-\$ or US-5677488-\$ or US-4322714-\$ or US-4383434-\$ or US-4005319-\$ or US-4255965-\$ or US-4316440-\$ or US-4341189-\$).did. or (US-4465047-\$ or US-4815353-\$ or US-5415026-\$ or US-5430343-\$ or US-5757107-\$ or US-5861705-\$ or US-5973440-\$ or US-6396201-\$ or US-4623030-\$ or US-4321464-\$ or US-5644075-\$ or US-6158280-\$ or US-4441044-\$ or US-4467271-\$ or US-4602989-\$ or US-4757228-\$ or US-4932259-\$ or US-5373481-\$ or US-5408880-\$ or US-5425272-\$ or US-5646339-\$ or US-5675325-\$ or US-5757104-\$ or US-5757721-\$).did.	USPAT	AND	ON	2006/07/24 17:23
S2	49	S1 and piezoelectric	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 14:16

## EAST Search History

S3	29	S2 and reed	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 14:16
S4	1	S1 and (piezoelectric adj reed)	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 14:17
S5	51	(piezoelectric adj reed)	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 15:04
S6	18	(piezoelectric adj reed) and phase	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 15:10
S7	0	("743284.pn.").PN.	USPAT; USOCR	OR	OFF	2005/12/05 15:10
S8	2	("0743284").PN.	USPAT; USOCR	OR	OFF	2005/12/05 15:14
S9	19	S5 and mass	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 15:14
S10	8	S5 and mass and phase	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 15:17
S11	19	S5 and mass	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 15:18
S12	12978	piezoelectric and mass and phase	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 15:19
S13	6052	piezoelectric and mass and phase and vibration	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 15:21
S14	492	S13 and (phase near3 (detector or detection))	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 15:21
S15	133	S14 and (vibration\$3 adj frequency)	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 15:22

## EAST Search History

S16	49	S15 and film	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 15:22
S17	0	("2005/0052813").URPN.	USPAT	AND	ON	2005/12/05 15:30
S18	1	S15 and (mass adj measurement)	USPAT	AND	ON	2005/12/05 15:32
S19	9	S15 and (mass near3 measurement)	USPAT	AND	ON	2005/12/05 15:35
S20	23296	((voltage near3 controlled) near4 oscillator)	USPAT	AND	ON	2005/12/05 15:36
S21	48990	phase adj (detection or difference)	USPAT	AND	ON	2005/12/05 15:36
S22	7695	S20 and S21	USPAT	AND	ON	2005/12/05 15:37
S23	437	S22 and circuit and piezoelectric	USPAT	AND	ON	2005/12/05 15:37
S24	4	S23 and (mass near3 measurement)	USPAT	AND	ON	2005/12/05 15:39
S25	5806	(mass near3 measurement)	USPAT	AND	ON	2005/12/05 15:40
S26	4	S21 S23 S25	USPAT	AND	ON	2005/12/05 15:40
S27	4	S23 S25	USPAT	AND	ON	2005/12/05 15:40
S28	8540	(mass near3 (measurement or measure))	USPAT	AND	ON	2005/12/05 15:42
S29	6	S23 S28	USPAT	AND	ON	2005/12/05 15:41
S30	629	(mass near3 (measurement or measure)) and piezoelectric	USPAT	AND	ON	2005/12/05 15:42
S31	24	S30 and S20	USPAT	AND	ON	2005/12/05 15:42
S32	7	S30 S20 S21	USPAT	AND	ON	2005/12/05 15:52
S33	5052	piezoelectric oscillator phase (detector or difference)	USPAT	AND	ON	2005/12/05 15:52
S34	1619	piezoelectric oscillator (phase adj (detector or difference))	USPAT	AND	ON	2005/12/05 15:53
S35	1619	(piezoelectric and piezo\$1electric) oscillator (phase adj (detector or difference))	USPAT	AND	ON	2005/12/05 16:05
S42	147	(177/210FP).CCLS.	USPAT; USOCR	OR	OFF	2006/02/21 18:48
S43	52	S42 and piezoelectric	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 16:12
S44	16	S42 and piezoelectric and phase	US-PGPUB; USPAT; USOCR; JPO	AND	ON	2005/12/05 16:12

## EAST Search History

S45	11	("2901239"   "3926271"   "4391338"   "4696181"   "4838371"   "4929874").PN. OR ("5488203").URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2005/12/05 16:21
S46	32	("3238789"   "3411347"   "3437850"   "3470400"   "3488530"   "4037121"   "4058007"   "4215570"   "4299122"   "4320320"   "4321500"   "4372173"   "4378702"   "4384495"   "4406966"   "4446394"   "4503715"   "4538461"   "4541495"   "4544858"   "4618014"   "4623030").PN. OR ("4773493").URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/21 18:46
S47	0	S46 and piezo-electic	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/21 18:47
S48	1	S46 and piezoelectric	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/21 18:47
S49	147	(177/210FP).CCLS.	USPAT; USOCR	OR	OFF	2006/02/21 18:48
S50	52	S49 and piezoelectric	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/21 18:48
S51	13	("3814914"   "3926271"   "3973636"   "4165633"   "4168623"   "4316384"   "4544858").PN. OR ("4623030").URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/21 18:54
S52	233	((177/210FP) or (73/580)).CCLS.	USPAT; USOCR	OR	OFF	2006/07/05 11:22
S53	2	S52 and film and (liquid or water) and air and phase	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/22 15:41
S54	14	S52 and film and phase	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/22 15:44
S55	13	S52 phase oscillator piezo\$8	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/22 15:45

## EAST Search History

S56	66	S52 phase	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/22 15:45
S57	5	("4783987"   "4788466"   "5201215"   "5416448").PN. OR ("6848299"). URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 15:48
S58	915	quartz adj crystal adj (balance or microbalance)	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 15:49
S59	444	quartz adj crystal adj (balance or microbalance) (water or liquid) and air	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 15:49
S60	336	quartz adj crystal adj (balance or microbalance) (water or liquid) and air phase	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 15:53
S61	312	quartz adj crystal adj (balance or microbalance) (water or liquid) and air phase (filter or film)	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 15:55
S62	70	quartz adj crystal adj (balance or microbalance) (water or liquid) same (filter or film) same air and phase	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/23 15:16
S63	20367	Kobayashi.in.	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 15:56
S64	362	Kobayashi.in. yoshihiro.in.	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 15:57
S65	22	Kobayashi.in. yoshihiro.in. piezo\$8	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 15:59
S66	19	Kobayashi.in. yoshihiro.in. seiko.as.	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 15:59
S67	10	Kobayashi.in. yoshihiro.in. seiko.as. piezo\$8	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 16:27
S68	11	("2901239"   "3926271"   "4391338"   "4696181"   "4838371"   "4929874").PN. OR ("5488203"). URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/22 16:40
S69	38	("3492858"   "3555886"   "3565193").PN. OR ("3926271"). URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/23 11:52

## EAST Search History

S70	38	("3492858"   "3555886"   "3565193").PN. OR ("3926271").URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/23 12:18
S71	49	("3715911"   "3744297"   "3926271"   "3957469"   "4294105").PN. OR ("4391338").URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/23 15:16
S72	440	quartz adj crystal adj (balance or microbalance) (water or liquid or fluid) same (filter or film) and phase	US-PGPUB; USPAT; USOCR	AND	ON	2006/02/23 15:29
S73	2	((("4639697") or ("5874866") or ("20040140857")).PN.	USPAT; USOCR	OR	OFF	2006/02/23 15:29
S74	2	((("4639697") or ("5874866")).PN.	USPAT; USOCR	OR	OFF	2006/02/24 11:53
S75	5	("4773493").URPN.	USPAT	AND	ON	2006/02/24 11:14
S76	1942764	"74" or 2004/0140857	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/24 11:53
S77	2	((("4639697") or ("5874866")).PN.	USPAT; USOCR	OR	OFF	2006/02/24 11:53
S78	2	S77 or 2004/0140857	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/24 11:53
S79	2	S77 or 2004/0140857	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/24 11:53
S80	0	2004/0140857	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/24 11:53
S81	2	"20040140857"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/24 11:53
S82	4	S79 or S81	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/24 11:53

## EAST Search History

S83	19	(US-20040233008-\$ or US-20050052813-\$).did. or (US-6444927-\$ or US-4623030-\$ or US-3926271-\$ or US-6134944-\$ or US-4773493-\$ or US-4391338-\$ or US-5201215-\$ or US-6931949-\$ or US-6848299-\$ or US-5442146-\$ or US-4239088-\$ or US-5488203-\$ or US-5874866-\$ or US-5408888-\$ or US-6080939-\$ or US-6326563-\$ or US-4788466-\$).did.	US-PGPUB; USPAT	AND	ON	2006/02/24 14:29
S84	13	S83 and air	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	AND	ON	2006/02/24 14:29
S85	2444	((177/210FP,154) or (73/862.59, 580) or (310/321,361)).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/05 11:10
S86	2472	(mass or weight) same piezoelectric and frequency with change	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/06/13 19:38
S87	136	S85 and S86	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/06/13 19:21
S88	2972	(mass or weight) same piezoelectric and (frequency with change or phase with difference)	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/06/13 19:40
S89	149	S88 and S85	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/06/13 19:40
S90	13	S88 and S85 not S87	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/06/13 19:46
S91	149	S88 and S85	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/06/13 19:47
S92	56	S88 and S85 (water or liquid or fluid)	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/06/13 19:47

## EAST Search History

S93	2446	((177/210FP,154) or (73/862.59, 580) or (310/321,361)).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/14 14:22
S94	234	((177/210FP) or (73/580)).CCLS.	USPAT; USOCR	OR	OFF	2006/07/05 11:23
S95	463	S93 and phase	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/05 11:23
S96	314	S93 and phase and (mass or weight)	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/05 11:24
S97	314	S93 and (phase or phase-difference) and (mass or weight)	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/05 11:24
S98	233	S93 and (phase or phase-difference) and (mass or weight) vibration	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/05 11:42
S99	81	S97 not S98	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/05 11:42
S10 0	6	"4773493"	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/05 15:21
S10 1	4	((("4773493") or ("5874866") or ("6080939") or ("4391338"))).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/05 15:21
S10 2	237	(177/154).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/20 17:23
S10 3	24	("4314242"   "4420727"   "4684842"   "4687962"   "4721874").PN. OR ("4788466").URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/14 15:21
S10 4	3	S103 and (vco or voltage adj2 oscillator)	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/14 15:22
S10 5	2	S103 and (vco or voltage adj2 oscillator) and phase	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/14 15:22

## EAST Search History

S10 6	25	(US-20040187580-\$ or US-20040233008-\$ or US-20050081635-\$ or US-20050052813-\$ or US-20040020275-\$).did. or (US-4788466-\$ or US-6931949-\$ or US-5488203-\$ or US-5442146-\$ or US-5113698-\$ or US-5874866-\$ or US-6444927-\$ or US-5449493-\$ or US-5201215-\$ or US-4618014-\$ or US-4391338-\$ or US-4239088-\$ or US-6134944-\$ or US-6848299-\$ or US-5408888-\$ or US-4623030-\$ or US-6326563-\$ or US-6080939-\$ or US-4773493-\$ or US-3926271-\$). did.	US-PGPUB; USPAT	AND	ON	2006/07/20 15:48
S10 7	17	S106 and phase	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/20 16:34
S10 8	1	"20040140857"	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/20 16:34
S10 9	3	((("20040140857") or ("5874866") or ("4639697"))).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/20 16:34
S11 0	12	("2901239"   "3926271"   "4391338"   "4696181"   "4838371"   "4929874").PN. OR ("5488203"). URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/20 17:12
S11 1	428	(177/210fp,321,361,154).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/20 17:24
S11 2	525	(73/580,862.59).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/20 17:26
S11 3	25	(S111 or S112) and (vco or voltage adj controlled adj oscillator)	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/20 17:33
S11 4	2861	(310/311,312).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/20 17:33

## EAST Search History

S11 5	24	(S114) and (vco or voltage adj controlled adj oscillator)	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/20 17:33
S11 6	2746	(310/315-319).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/24 17:25
S11 7	232	S116 and (vco or voltage adj controlled adj oscillator)	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/24 17:37
S11 8	546	S116 and (mass)	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/24 17:37
S11 9	61	S116 and (mass same (measurement or determination))	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/24 17:38
S12 0	30045	("177").CLAS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/24 17:38
S12 1	125885	("310").CLAS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/24 17:39
S12 2	72	S120 and S121	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/24 17:51
S12 3	948	(310/317).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/25 10:47
S12 4	948	(310/317).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/25 10:47
S12 5	424	S124 and phase	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2006/07/25 10:48

## EAST Search History

S12 6	32	("3238789"   "3411347"   "3437850"   "3470400"   "3488530"   "4037121"   "4058007"   "4215570"   "4299122"   "4320320"   "4321500"   "4372173"   "4378702"   "4384495"   "4406966"   "4446394"   "4503715"   "4538461"   "4541495"   "4544858"   "4618014"   "4623030").PN. OR ("4773493").URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/25 11:38
S12 7	15	S126 and phase	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/25 11:59
S12 8	8	("3670833"   "4418774"   "4531600"   "4553619").PN. OR ("4618014"). URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/25 11:42
S12 9	261	S124 and (mass or weight)	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/25 11:42
S13 0	152	S124 and (mass or weight) and phase	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/25 11:43
S13 1	418	S124 and phase	US-PGPUB; USPAT; USOCR	AND	ON	2006/07/25 11:59
S13 3	2508	(voltage controlled oscillator).clm.	US-PGPUB	AND	ON	2006/07/25 12:19
S13 4	1868	(voltage adj controlled adj oscillator).clm.	US-PGPUB	AND	ON	2006/07/25 12:19
S13 5	161	(signal phase (vibration or oscillation) piezoelectric).clm.	US-PGPUB	AND	ON	2006/07/25 12:20
S13 6	133	(frequency signal phase (vibration or oscillation) piezoelectric).clm.	US-PGPUB	AND	ON	2006/07/25 12:20
S13 7	20	(mass frequency signal phase (vibration or oscillation) piezoelectric).clm.	US-PGPUB	AND	ON	2006/07/25 12:26
S13 8	2	((("5705399") or ("6756793")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/25 12:28
S13 9	3	((("3953844") or ("4618014") or ("20030033876")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2006/07/25 12:31